

### SUPPORT FOR THE AMENDMENT

This Amendment cancels Claims 1, 5-7, 11-14, 31, 35-36, 39 and 42. Support for the amendments is found in the specification and claims as originally filed. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 15, 19-20, 24-26, 30 and 40-41 will be pending in this application. Claims 15 and 26 are independent. Claims 20 and 24-25 are withdrawn from consideration pursuant to a Restriction Requirement.

### REQUEST FOR RECONSIDERATION

Applicants respectfully request entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention is directed to a piston made of aluminum cast alloy having improved thermo-mechanical fatigue resistance. A Ca content of 0.0005-0.003 mass % provides a desirable fine, homogenous microstructure (texture) that is not achieved outside of this range.

Claims 1, 5-6, 15, 19, 26, 30-31, 35-36 and 39-42 are rejected under 35 U.S.C. § 103(a) over RU 2092604C1 ("RU-604") and "Aluminum standards and data 2003" page 1-6.

RU-604 discloses an aluminum-based alloy containing (in wt.%) "at least one other element selected from group comprising bismuth, barium, antimony, calcium, sodium, potassium and strontium 0.03-0.15". RU-604 at English-language abstract.

"Aluminum standards and data 2003" is cited for disclosing the addition of Na, Sr, Ca and/or P to 3xx and 4xx type Al-Si foundry alloys in order to modify the structure; and that 0.005-0.15% Ca and  $\leq 0.060\%$  P are effective modifiers. Office Action at page 3, lines 3-6.

Any *prima facie* case for the obviousness of independent Claims 15 and 26 is rebutted by the significant improvement in homogeneous microstructure (texture) that is achieved by the medium Mg (i.e., "Mg (Magnesium): 0.2-2 mass %") embodiments of independent Claims 15 and 26, over the range of "Ca (Calcium) : 0.0005-0.003 mass%". See Second Declaration Under 37 C.F.R. § 1.132 filed November 7, 2008.

Applicants thank the Examiner for the indication that the Second Declaration Under 37 C.F.R. § 1.132 filed November 7, 2008, and the Third Declaration Under 37 C.F.R. § 1.132 filed June 27, 2008, demonstrate criticality over the range of "Ca (Calcium) : 0.0005-0.003 mass%".

... [T]he examiner agrees that declarations filed June 27, 2008 and November 7, 2007 have shown the Ca is critical in the claimed range of 0.0005-0.003%, and said results occur (for medium Mg embodiment) over the claimed ranges of: Si, Cu, Fe, Mn, Ti, Zr, V, P, and Ca; [However] it is unclear if the unexpected results occur over the entirely claimed alloying ranges of Mg and Ni. Office Action at page 5, lines 17-21 (emphasis in original).

The attached Fourth Declaration Under 37 C.F.R. § 1.132 demonstrates that the significant improvement in homogeneous microstructure (texture) that is achieved by the medium Mg (i.e., "Mg (Magnesium): 0.2-2 mass %") embodiments of independent Claims 15 and 26, over the range of "Ca (Calcium) : 0.0005-0.003 mass%", is achieved over the ranges of Mg and Ni respectively featured in independent Claims 15 and 26.

The cited prior art fails to suggest the significant improvement in homogeneous texture achieved by the present invention over the range of "Ca (Calcium) : 0.0005-0.003 mass%" in the alloys featured in independent Claims 15 and 26.

Thus, any *prima facie* case of obviousness is rebutted. Therefore, the rejection under 35 U.S.C. § 103(a) should be withdrawn.

Pursuant to M.P.E.P. § 821.04, after independent product Claim 15 is allowed, Applicants respectfully request rejoinder, examination and allowance of withdrawn method Claims 20 and 24-25, which include all of the limitations of product Claim 15.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 06/04)

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.  
Norman F. Oblon



Corwin P. Umbach, Ph.D.  
Registration No. 40,211

Attached: Fourth Declaration Under 37 C.F.R. § 1.132